

# SEQUENCE LISTING

<110> TANOX, INC.  
FUNG, Sek Chung  
MOYLE, Matthew

<120> Treatment of Cancer Using Novel Anti-IL13 Antibodies

<130> TNX-1088

<140> 10/583,926

<141> 2006-06-22

<150> US60/532,130

<151> 2003-12-23

<150> PCT/US2004/43541

<151> 2004-12-23

<160> 152

<170> PatentIn version 3.4

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<213> Homo sapiens

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Ser Met Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala  
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Leu Glu Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Lys Thr  
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Gln Arg Met Leu Ser Gly Phe Cys Pro His Lys Val Ser Ala Gly Gln  
65 70 75 80

Phe Ser Ser Leu His Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe  
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Val Lys Asp Leu Leu Leu His Leu Lys Lys Leu Phe Arg Glu Gly Arg  
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Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Arg Thr Asp Phe Thr  
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Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Arg Thr Asp Phe Thr  
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Leu Thr Ile Asp Pro Leu Glu Ala Glu Asp Val Ala Val Tyr Tyr Cys  
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Leu Thr Ile Ser Ser Leu Glu Ala Glu Asp Val Ala Val Tyr Tyr Cys  
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Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr  
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Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys  
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Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr  
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Leu Thr Ile Ser Pro Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys  
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Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg  
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Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg  
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Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Ser Thr Phe Ser  
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Thr Leu Thr Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Asn  
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Thr Leu Thr Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Ser  
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Arg Leu Asn Ile Ser Lys Asp Ser Ser Lys Ser Gln Val Phe Leu Lys  
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Met Ser Ser Leu Gln Ser Asp Asp Thr Ala Arg Tyr Tyr Cys Ala Gly  
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Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu Thr  
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Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala Arg  
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Arg Val Thr Met Leu Lys Asp Thr Ser Lys Asn Gln Phe Ser Leu Arg  
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Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala Arg  
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Arg Leu Thr Ile Ser Lys Asp Ser Ser Lys Asn Gln Val Val Leu Thr  
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Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala Gly  
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Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu Thr  
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Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala Gly  
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Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu Thr  
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Met Thr Asn Met Asp Pro Val Asp Thr Ala Arg Tyr Tyr Cys Ala Gly  
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Arg Leu Asn Met Ser Lys Asp Thr Ser Lys Asn Gln Phe Phe Leu Arg  
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Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala Gly  
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Arg Leu Asn Met Ser Lys Asp Thr Ser Lys Asn Gln Phe Phe Leu Arg  
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Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Arg Tyr Tyr Cys Ala Gly  
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Arg Val Asn Met Ser Lys Asp Thr Ser Lys Asn Gln Phe Ser Leu Arg  
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Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala Arg  
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Arg Leu Asn Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu Thr  
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Met Thr Asn Met Asp Pro Val Asp Thr Ala Arg Tyr Tyr Cys Ala Arg  
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Arg Leu Thr Ile Ser Lys Asp Ile Ser Lys Asn Gln Val Val Leu Thr  
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Met Thr Asn Met Asp Pro Val Asp Thr Ala Arg Tyr Tyr Cys Ala Gly  
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Arg Leu Asn Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu Thr  
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Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala Gly  
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Arg Leu Asn Ile Ser Lys Asp Ser Ser Lys Asn Gln Val Val Leu Thr  
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Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala Gly  
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Arg Leu Asn Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu Thr  
Page 27

1 5 10 15

Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala Arg  
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Arg Leu Thr Ile Ser Lys Asp Ser Ser Lys Asn Gln Val Val Leu Thr  
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Met Thr Asn Met Asp Pro Val Asp Thr Ala Arg Tyr Tyr Cys Ala Gly  
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<400> 91

Trp Gly His Gly Thr Ser Val Thr Val Ser Ser  
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Trp Gly Gln Gly Ser Leu Val Thr Val Ser Ser  
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Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ser Val Ser Leu Gly  
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1	5	10	15
Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser Lys Ser Val Asp Ser Tyr	20	25	30
Gly Gln Ser Phe Met His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro	35	40	45
Lys Leu Leu Ile Tyr Leu Ala Ser Asn Leu Glu Ser Gly Val Pro Asp	50	55	60
Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser	65	70	75
Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln Asn Ala	85	90	95
Glu Asp Pro Arg Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg	100	105	110
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Gln val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln	1	5	10
Thr Leu Thr Leu Thr Cys Thr Gly Ser Gly Phe Ser Leu Ser Ala Tyr	20	25	30
Ser Val Asn Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu	35	40	45
Ala Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys	50	55	60
Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu	65	70	75
Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala	85	90	95
Val Asp Gly Tyr Tyr Pro Tyr Ala Met Lys Asn Trp Gly Gln Gly Ser	100	105	110

Leu Val Thr Val Ser Ser  
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Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ser Val Ser Leu Gly  
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Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser Lys Ser Val Asp Ser Tyr  
20 25 30

Gly Gln Ser Phe Met His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro  
35 40 45

Lys Leu Leu Ile Tyr Leu Ala Ser Asn Leu Glu Ser Gly Val Pro Asp  
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser  
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln Asn Asn  
85 90 95

Glu Asp Pro Arg Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg  
100 105 110

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Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln  
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Thr Leu Thr Leu Thr Cys Thr Gly Ser Gly Phe Ser Leu Ser Ala Lys  
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Ser Val Asn Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu  
35 40 45

Ala Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys  
50 55 60

Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu  
65 70 75 80

Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala  
85 90 95

Val Asp Gly Tyr Tyr Pro Tyr Ala Met Ser Asn Trp Gly Gln Gly Ser  
100 105 110

Leu Val Thr Val Ser Ser  
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Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ser Val Ser Leu Gly  
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Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser Lys Ser Val Asp Ser Tyr  
20 25 30

Gly Gln Ser Phe Met His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro  
35 40 45

Lys Leu Leu Ile Tyr Leu Ala Ser Asn Leu Glu Ser Gly Val Pro Asp  
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser  
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln Asn Ala  
85 90 95

Glu Asp Pro Arg Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg  
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Thr Leu Thr Leu Thr Cys Thr Gly Ser Gly Phe Ser Leu Ser Ala Lys  
20 25 30

Ser Val Asn Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu  
35 40 45

Ala Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys  
50 55 60

Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu  
65 70 75 80

Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala  
85 90 95

Val Asp Gly Tyr Tyr Pro Tyr Ala Met Lys Asn Trp Gly Gln Gly Ser  
100 105 110

Leu Val Thr Val Ser Ser  
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Arg Ala Ser Lys Ser Val Asp Ser Tyr Gly Gln Ser Phe Met His  
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Arg Ala Ser Lys Ser Val Asp Ser Tyr Gly Gln Ser Phe Leu His  
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Arg Ala Ser Lys Ser Val Asp Ser Tyr Gly Asn Ser Tyr Met His  
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<400> 103

Arg Ala Ser Lys Ser Val Asp Ser Tyr Gly Asn Ser Phe Leu His  
1 5 10 15

<210> 104  
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<400> 104

Leu Ala Ser Asn Leu Glu Ser  
1 5

<210> 105  
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Leu Ala Ser Asn Leu Asn Ser  
1 5

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<400> 106

Leu Ala Ser Asn Leu Gln Ser  
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<400> 107

Leu Ala Thr Asn Leu Glu Ser  
1 5

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<400> 108

Leu Ala Ser Asn Leu Lys Ser  
1 5

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<211> 7

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<400> 109

Leu Ala Ser Asn Leu Glu Lys  
1 5

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Leu Ala Ser Arg Leu Glu Ser  
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<400> 111

Leu Ala Ser Asn Leu His Ser  
1 5

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<400> 112

Leu Ala Ser Asn Leu Ser Ser  
1 5

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<400> 113

Leu Ala Ser Phe Leu Glu Ser  
1 5

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<400> 114

Leu Ala Asn Asn Leu Glu Ser  
1 5

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<400> 115

Gln Gln Asn Asn Glu Asp Pro Arg Thr  
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Gln Gln Asn Ala Glu Asp Pro Arg Thr  
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<400> 117

Ala Tyr Ser Val Asn  
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Ala Lys Ser Val Asn  
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Ala Asn Ser Val Asn  
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Gly Tyr Ser Val Asn  
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Ala His Ser Val Asn  
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Ala Arg Ser Val Asn  
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Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys Ser

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<400> 124

Met Ile Trp Gly Asp Gly Lys Ile Ser Tyr Asn Ser Ala Leu Lys Ser  
1 5 10 15

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Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Glu Ser  
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Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys Ser  
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Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Asp Leu Lys Ser  
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 Met Ile Trp Gly Asp Gly Lys Val Val Tyr Asn Ser Ala Leu Lys Ser  
 1 5 10 15

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 Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Glu Leu Lys Ser  
 1 5 10 15

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 Met Ile Trp Gly Asp Gly Lys Ile Ala Tyr Asn Ser Ala Leu Lys Ser  
 1 5 10 15

<210> 131  
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 Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys Glu  
 1 5 10 15

<210> 132  
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 Met Val Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys Ser  
 1 5 10 15

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<220>  
<223> CDR-H2 VARIANT 10

<400> 133

Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Ala Ser  
1 5 10 15

<210> 134  
<211> 16  
<212> PRT  
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<400> 134

Met Ile Trp Gly Asp Gly Lys Lys Val Tyr Asn Ser Ala Leu Lys Ser  
1 5 10 15

<210> 135  
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<400> 135

Asp Gly Tyr Tyr Pro Tyr Ala Met Asp Asn  
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<210> 136  
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<223> CDR-H3 VARIANT 1

<400> 136

Asp Gly Arg Tyr Pro Tyr Ala Met Asp Asn  
1 5 10

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<223> CDR-H3 VARIANT 2

<400> 137

Asp Gly Tyr Tyr Pro Tyr Ala Met Lys Asn  
1 5 10

<210> 138

<211> 10

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<223> CDR-H3 VARIANT 3

<400> 138

Asp Gly Arg Tyr Pro Tyr Ala Met Lys Asn  
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<223> CDR-H3 VARIANT 4

<400> 139

Asp Gly Tyr Tyr Pro Tyr Ala Met Ser Asn  
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<400> 140

Asp Gly Tyr Tyr Pro Tyr Ala Met Ala Asn  
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<210> 141

<211> 10

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<223> CDR-H3 VARIANT 6

<400> 141

Asp Gly Tyr Tyr Pro Tyr Ala Leu Asp Asn  
1 5 10

<210> 142

<211> 112  
<212> PRT  
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<223> VARIABLE LIGHT CHAIN OF CL-89

<400> 142

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ser Val Ser Leu Gly  
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser Lys Ser Val Asp Ser Tyr  
20 25 30

Gly Asn Ser Phe Met His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro  
35 40 45

Lys Leu Leu Ile Tyr Leu Ala Ser Asn Leu Glu Ser Gly Val Pro Asp  
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser  
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln Asn Asn  
85 90 95

Glu Asp Pro Arg Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg  
100 105 110

<210> 143  
<211> 118  
<212> PRT  
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<220>  
<223> VARIABLE HEAVY CHAIN CL-276G

<400> 143

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln  
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Ala Tyr  
20 25 30

Ser Val Asn Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu  
35 40 45

Ala Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys  
50 55 60

Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu  
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Leu Asp Gly Tyr Tyr Pro Tyr Ala Met Asp Asn Trp Gly Gln Gly Ser  
100 105 110

Leu Val Thr Val Ser Ser  
115

<210> 147  
<211> 118  
<212> PRT  
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<220>  
<223> VARIABLE HEAVY CHAIN RL-11

<400> 147

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln  
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Thr Ser Gly Phe Ser Leu Ser Ala Tyr  
20 25 30

Ser Val Asn Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu  
35 40 45

Ala Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys  
50 55 60

Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu  
65 70 75 80

Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala  
85 90 95

Val Asp Gly Tyr Tyr Pro Tyr Ala Met Asp Asn Trp Gly Gln Gly Ser  
100 105 110

Leu Val Thr Val Ser Ser  
115

<210> 148  
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<223> VARIABLE HEAVY CHAIN RL-8

<400> 148

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln  
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Leu Ser Gly Phe Ser Leu Ser Ala Tyr  
20 25 30

Ser Val Asn Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu  
35 40 45

Ala Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys  
50 55 60

Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu  
65 70 75 80

Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala  
85 90 95

Ser Asp Gly Tyr Tyr Pro Tyr Ala Met Asp Asn Trp Gly Gln Gly Ser  
100 105 110

Leu Val Thr Val Ser Ser  
115

<210> 149  
<211> 118  
<212> PRT  
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<220>  
<223> VARIABLE HEAVY CHAIN RL-45  
<400> 149

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln  
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Thr Ser Gly Phe Ser Leu Ser Ala Tyr  
20 25 30

Ser Val Asn Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu  
35 40 45

Ala Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys  
50 55 60

Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu  
65 70 75 80

Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala  
85 90 95

Thr Asp Gly Tyr Tyr Pro Tyr Ala Met Asp Asn Trp Gly Gln Gly Ser  
Page 46

100

105

110

Leu Val Thr Val Ser Ser  
115

<210> 150  
<211> 112  
<212> PRT  
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<223> VARIABLE LIGHT CHAIN RL-36-L1,59  
<400> 150

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ser Val Ser Leu Gly  
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser Lys Ser Val Asp Ser Tyr  
20 25 30

Gly Gln Ser Phe Met His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro  
35 40 45

Lys Leu Leu Ile Tyr Leu Ala Ser Asn Leu Glu Ser Gly Val Pro Asp  
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser  
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln Asn Asn  
85 90 95

Glu Asp Pro Arg Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg  
100 105 110

<210> 151  
<211> 118  
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<223> VARIABLE HEAVY CHAIN RL36-L1,59  
<400> 151

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln  
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Gly Ser Gly Phe Ser Leu Ser Ala Tyr  
20 25 30

Ser Val Asn Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu  
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35

40

45

Ala Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys  
50 55 60

Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu  
65 70 75 80

Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala  
85 90 95

Val Asp Gly Tyr Tyr Pro Tyr Ala Met Asp Asn Trp Gly Gln Gly Ser  
100 105 110

Leu Val Thr Val Ser Ser  
115

<210> 152  
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<400> 152

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln  
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Ala Tyr  
20 25 30

Ser Val Asn Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu  
35 40 45

Ala Met Ile Trp Gly Asp Gly Lys Ile Val Tyr Asn Ser Ala Leu Lys  
50 55 60

Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val Val Leu  
65 70 75 80

Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr Cys Ala  
85 90 95

Gly Asp Gly Tyr Tyr Pro Tyr Ala Met Asp Asn Trp Gly Gln Gly Ser  
100 105 110

Leu Val Thr Val Ser Ser Gly Gly Ser Ser Arg Ser Ser Ser Ser Gly  
115 120 125

Gly Gly Gly Ser Gly Gly Gly Gly Asp Ile Val Met Thr Gln Ser Pro  
130 135 140

Asp Ser Leu Ser Val Ser Leu Gly Glu Arg Ala Thr Ile Asn Cys Arg  
145 150 155 160

Ala Ser Lys Ser Val Asp Ser Tyr Gly Asn Ser Phe Met His Trp Tyr  
165 170 175

Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Leu Ala Ser  
180 185 190

Asn Leu Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly  
195 200 205

Thr Asp Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Val Ala  
210 215 220

Val Tyr Tyr Cys Gln Gln Asn Asn Glu Asp Pro Arg Thr Phe Gly Gly  
225 230 235 240

Gly Thr Lys Val Glu Ile Lys Arg  
245